

CLAIMS

1. A process for manufacturing composite sheets, in which:

5 - a web of yarns, in the form of a mat of continuous yarns, a woven, a knit or an assembly of continuous non-interlaced yarns, is continuously deposited on a moving substrate, this web comprising at least one organic material and at least one reinforcing
10 material;

 - a powder of an organic material capable of forming a coating layer under the action of heat is deposited on at least one side of said web;

 - the web coated with the powder is heated to a
15 temperature sufficient to melt the powder;

 - the web is compressed and cooled so as to form a composite strip; and

 - the strip is cut in the form of sheets or wound up on a rotating support.

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2. The process as claimed in claim 1, **characterized in that** the powder consists of particles of a thermoplastic or thermosetting material.

25 3. The process as claimed in claim 2, **characterized in that** the thermoplastic material is selected from polyolefins, polyamides, polyesters and PVC.

30 4. The process as claimed in claim 2, **characterized in that** the thermosetting material is selected from epoxies, polyesters, polyurethanes and phenolic compounds.

35 5. The process as claimed in one of claims 1 to 4, **characterized in that** the web comprises between 20 and 90%, preferably between 30 and 85%, by weight of reinforcing material.

6. The process as claimed in one of claims 1 to 5, **characterized in that** the reinforcing material is glass, carbon or aramid.

5 7. The process as claimed in one of claims 1 to 6, **characterized in that** the web comprises at least 50% by weight of intermingled yarns of glass filaments and of filaments of a thermoplastic organic material.

10 8. The process as claimed in one of claims 1 to 7, **characterized in that** the web is exclusively in the form of wovens or of continuous non-interlaced yarns.

15 9. The process as claimed in one of claims 1 to 8, **characterized in that** the powder is deposited on the web in an amount sufficient to produce a final coating layer with a thickness of between 0.3 and 1 mm, preferably between 0.6 and 0.8 mm.

20 10. The process as claimed in one of claims 1 to 9, **characterized in that** at least one intermediate structure is deposited on at least one side of the web, before the powder application step.

25 11. The process as claimed in claim 10, **characterized in that** the structure is selected from yarns or yarn assemblies, films, veils, sheets, panels and foams.

30 12. An installation for manufacturing a composite sheet comprising:

a) at least one device for feeding at least one web of continuous yarns;

b) at least one powder coating device;

35 c) at least one device for heating the powder-coated web; and

d) at least one device for compressing, and optionally cooling, the web.

13. The installation as claimed in claim 12, **characterized in that** it furthermore includes at least one cutting device and/or at least one collecting device for the composite sheet.

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14. The installation as claimed in claim 12 or 13, **characterized in that** the powder coating device is a roll provided with grooves or with nips, a doctor blade or an electrostatic powder coater.

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15. The installation as claimed in one of claims 12 to 14, **characterized in that** the devices c) and d) form part of a double belt press or of a double belt laminator.

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16. A composite sheet obtained by the process as claimed in one of claims 1 to 11, **characterized in that** it is provided on at least one of its sides with a coating layer with a thickness of between 0.3 and 1 mm, preferably 0.6 and 0.8 mm.

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17. The sheet as claimed in claim 16, **characterized in that** it has a thickness varying from 1 to 10 mm, preferably from 1 to 6 mm.

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18. The use of the composite sheet as claimed in claim 16 or 17 for the manufacture of transport vehicle panels, especially truck, trailer or container panels.

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19. A panel, especially for a truck, trailer or container, comprising a core coated on at least one of its sides with a composite sheet as claimed in either of claims 16 and 17.

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20. The panel as claimed in claim 19, **characterized in that** the core is a wooden board or a sheet of thermoplastic or thermosetting foam, or a cellular structure based on aluminum, paper or polypropylene.

21. The panel as claimed in either of claims 19 and 20, characterized in that it has a thickness varying from 2 to 100 mm.